

Remarks

Claims 1 and 2 are pending herein.

In the Office Action, claim 1 is rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,294,478 to Sakaguchi et al. (“Sakaguchi”), and claim 2 is rejected under 35 U.S.C §103(a) as being unpatentable over Sakaguchi in view of U.S. Patent No. 4,612,408 to Moddel et al. (“Moddel”).

In view of the remarks herein, Applicants respectfully request reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claim 1

Claim 1 is rejected under 35 U.S.C. §102(b) as being anticipated by Sakaguchi.

Sakaguchi is cited in the Office Action for disclosing a process step involving:

affixing a protective tape to the front surface of a semiconductor wafer having a plurality of circuits formed on its front surface, grinding the back surface of the semiconductor wafer and then, subjecting the back surface of the semiconductor wafer to plasma etching, wherein a tape having an adhesive layer that is hardened by exposure to ultraviolet radiation is used as the protective tape and the protective tape is exposed to ultraviolet radiation to harden the adhesive layer before the back surface of the semiconductor wafer undergoes plasma etching (see Figures 1-3).

Applicants respectfully submit that claim 1 is not anticipated by Sakaguchi.

Sakaguchi does not teach or suggest the steps of Applicants’ claim 1 method, particularly the use of an adhesive layer as a protective tape on a front surface (or any surface) of a wafer and the exposure of such protective tape or any other structure to ultraviolet radiation, whether before or after plasma etching of the back surface of a wafer.

The Office Action cites Figures 1-3 of Sakaguchi as teaching Applicants’ claim 1 method. However, Applicants submit that these Figures do not illustrate Applicants’ claimed method. Figures 1-3 show a semiconductor wafer having a first Si single-crystal substrate 11, a porous Si layer 12, a non-porous thin film 13, an insulating layer 14, a second substrate 15, and an oxidized porous Si layer 16. Neither these figures nor any other part of Sakaguchi discloses a protective tape having an adhesive layer that is hardened by exposure to ultraviolet radiation, the affixing of such tape to a front surface (or any other surface) of a semiconductor wafer having a

plurality of circuits formed on its front surface, the grinding of the back surface of the wafer, the exposure of the protective tape to ultraviolet radiation to harden the adhesive layer, and the subsequent plasma etching of the back surface of the wafer.

Thus, for at least the foregoing reasons, Applicants respectfully submit that claim 1 is not anticipated by Sakaguchi.

II. Rejection of Claim 2

Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sakaguchi in view of Moddel.

In this rejection, Sakaguchi is cited for disclosing a process step involving:

grinding the back surface of the semiconductor wafer until the dividing grooves are exposed to separate into individual circuits and then, executing plasma etching of the back surface of the semiconductor wafer, wherein a tape having an adhesive layer which is hardened by exposure to ultraviolet radiation is used as the protective tape, and the protective tape is exposed to ultraviolet radiation to harden the adhesive layer before the back surface of the semiconductor wafer undergoes plasma etching (see Figures 1-3).

According to the Office Action, Sakaguchi does not teach the forming of dividing grooves having a predetermined depth along a plurality of streets on the front surface of a semiconductor wafer having a plurality of streets on the front surface in a lattice form and a circuit formed in each of a plurality of areas sectioned by the plurality of streets, affixing a protective tape to the front surface of the semiconductor wafer having the dividing grooves formed thereon.

Moddel is cited for disclosing an integrated circuit the formation of which involves forming dividing grooves having a predetermined depth along a plurality of streets on the front surface of a semiconductor wafer having a plurality of streets on the front surface in a lattice form and a circuit formed in each of a plurality of areas sectioned by the plurality of streets, affixing a protective tape to the front surface of the semiconductor wafer having the dividing grooves formed thereon (see Figure 3).

According to the Office Action, it would have been obvious to modify the semiconductor wafer of Sakaguchi in accordance with Moddel's teaching in order to facilitate the manufacture

of a semiconductor structure and to protect the semiconductor device from damage during the fabrication process.

Applicants respectfully submit that claim 2 would not have been obvious over Sakaguchi in view of Moddel.

As stated previously, Sakaguchi does not disclose a protective tape having an adhesive layer that is hardened by exposure to ultraviolet radiation, the affixing of such tape to a front surface of a semiconductor wafer having a plurality of circuits formed on its front surface, the grinding of the back surface of such wafer, the exposure of the protective tape to ultraviolet radiation to harden the adhesive layer, and the subsequent plasma etching of the back surface of the wafer. Moddel also does not teach these features. Therefore, Applicants submit that regardless of Moddel's teachings regarding grooves on a semiconductor wafer, the combined teachings of Sakaguchi and Moddel would not have rendered instant claim 2 obvious.

Thus, for at least the foregoing reasons, Applicants submit that claim 2 would not have been obvious over Sakaguchi in view of Moddel.

III. Conclusion

In view of the remarks herein, Applicants respectfully request that the rejections set forth in the Office Action be withdrawn and that claims 1 and 2 be allowed.

If any additional fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033773M064.

Respectfully submitted,
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Enclosures: (1) Petition for Extension of Time (One Month)
(2) Check for \$120

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